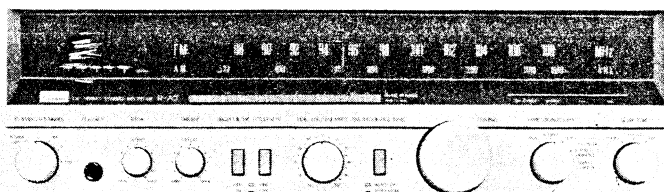


SERVICE MANUAL

STEREO RECEIVER

SANSUI R-30/50/70



SANSUI ELECTRIC CO., LTD.

SPECIFICATIONS

Audio section

Power output <R-30>

Min. RMS, both channels driven, from 40 to 20,000 Hz, with no more than 0.09 % total harmonic distortion.

25 watts per channel into 8 ohms

Power output <R-50>

Min. RMS, both channels driven, from 30 to 20,000 Hz, with no more than 0.09 % total harmonic distortion.

45 watts per channel into 8 ohms

Power output <R-70>

Min. RMS, both channels driven, from 20 to 20,000 Hz, with no more than 0.08 % total harmonic distortion.

65 watts per channel into 8 ohms

Total harmonic distortion <R-30/50>

..... less than 0.09 % at or below rated min. RMS power output

Total harmonic distortion <R-70>

..... less than 0.08 % at or below rated min. RMS power output

Frequency response (at 1 watt)

..... 10 to 50,000 Hz, +1 dB, -3 dB

Input sensitivity and impedance (at 1 kHz) <R-30>

PHONO 2.5 mV/47 kilohms

TAPE PLAY 150 mV/47 kilohms

Input sensitivity and impedance (at 1 kHz) <R-50/70>

PHONO 2.5 mV/47 kilohms

AUX, TAPE PLAY 150 mV/47 kilohms

Output level (at 1 kHz)

TAPE REC 150 mV

Hum and noise (short-circuit, A-network)

PHONO 73 dB

FM section

Tuning range 88 to 108 MHz

Usable sensitivity

Mono IHF 12 dBf (2.2 μ V)

DIN 1.1 μ V

Stereo IHF 22 dBf

50 dB quieting sensitivity

Stereo 38 dBf

Signal to noise ratio (at 65 dBf)

Mono 72 dB

Stereo 67 dB

Distortion (at 65 dBf)

Mono less than 0.5 % at 1,000 Hz

Stereo less than 0.8 % at 1,000 Hz

Stereo separation

..... 35 dB at 1,000 Hz

Antenna input impedance

..... 300 ohms balanced
75 ohms unbalanced

AM section

Tuning range 530 to 1,600 kHz

Usable sensitivity (bar antenna)

..... 50 dB/m (300 μ V/m)

Signal to noise ratio 46 dB

Others

Power voltage 110 ~ 120, 220 ~ 240 V
(50/60 Hz)

For U.S.A. and Canada

..... 120 V (60 Hz)

Power consumption <R-30>

..... 100 watts 120 VA Rated

Power consumption <R-50>

..... 160 watts 190 VA Rated

Power consumption <R-70>

..... 230 watts 280 VA Rated

Dimensions

430 mm (16-15/16") W

147 mm (5-13/16") H

252 mm (9-15/16") D

Weight <R-30> 5.6 kg (12.3 lbs.) net

6.5 kg (14.3 lbs.) packed

Weight <R-50> 6.7 kg (14.8 lbs.) net

7.6 kg (16.8 lbs.) packed

Weight <R-70> 7.5 kg (16.5 lbs.) net

8.4 kg (18.5 lbs.) packed

* Design and specifications subject to changes without notice for improvements.

SANSUI

COMMON PARTS LISTS FOR RESISTORS & CAPACITORS

<Issued on June, 1987>

On this parts list, ten sorts of resistors, & seventeen sorts of capacitors, which are commonly used in the Sansui products, are listed. Since these resistors & capacitors on this list are omitted from service manual, please confirm shape, resistance or capacitance value, schematic diagram, and this list on the parts when replacing the parts with trouble. In addition, please pay attention to fill out the name and stock number (8 digit) of parts when order.

With the issue of this parts list, please abandon the "Common Part List for Resistance & Capacitors" previously issued.

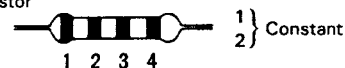
Notice:

Capacitors & Resistors on this parts list include one not to be used in Sansui products, therefore they can not be supplied although ordered.

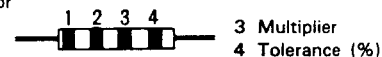
◆ Resistors

How to read color cord:

Carbon resistor



Solid resistor



For example:

1. Brown 2. Red
3. Orange 4. Silver
= $12 \times 10^3 (\Omega) \pm 10\%$
= $12k\Omega \pm 10\%$

{ Gold: $\pm 5\%$
Silver: $\pm 10\%$
Colorless: $\pm 10\%$

| Color | 1 | 2 | 3 | 4 |
|--------|---|---|--------|---|
| Black | 0 | 0 | 10^0 | |
| Brown | 1 | 1 | 10^1 | |
| Red | 2 | 2 | 10^2 | |
| Orange | 3 | 3 | 10^3 | |
| Yellow | 4 | 4 | 10^4 | |
| Green | 5 | 5 | 10^5 | |
| Blue | 6 | 6 | 10^6 | |

| Color | 1 | 2 | 3 | 4 |
|-----------|---|---|-----------|------------|
| Purple | 7 | 7 | — | |
| Gray | 8 | 8 | — | |
| White | 9 | 9 | — | |
| Gold | — | — | 10^{-1} | $\pm 5\%$ |
| Silver | — | — | 10^{-2} | $\pm 10\%$ |
| Colorless | — | — | — | $\pm 20\%$ |

◆ Symbol mark on schematic diagram & abbreviation on service manual

| Abbreviation | Name | Symbol |
|--------------|--------------------------------|--------|
| C.R. | Carbon Resistor | none |
| F.R. | Fusing Resistor | |
| N.I.R. | Non-Inflamable Resistor | |
| Ce.R. | Cement Resistor | |
| P.R. | Printed Resistor | |
| Chip R. | Cylindrical Type Chip Resistor | |

| Abbreviation | Name | Symbol |
|--------------|--|------------|
| F.C. (m) | Film (Maylar) Capacitor | |
| Ta.C. | Tantalum Capacitor | (Ta) |
| P.C. | Polystyrene Capacitor | |
| C.C. | Ceramic Capacitor | Δ |
| C.T. | Ceramic Capacitor Temperature Compensation | ΔT |
| E.C. | Electrolytic Capacitor | (\neq) |
| E.B.L. | Low Leak Electrolytic Capacitor | |
| F.C. (P) | Polypropylene Film Capacitor | |
| Chip C. | Chip Ceramic Capacitor | |

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NOTE

◆ Common resistors and capacitors in this parts list substitute for other types of resistores and capacitors.

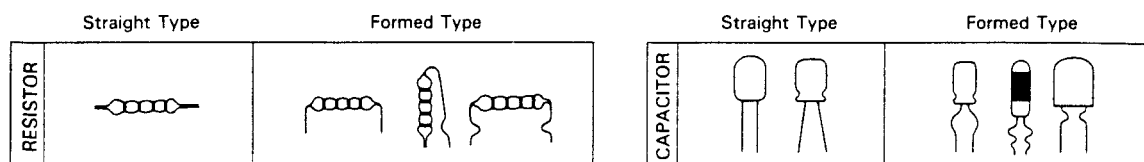
1) The following list shows relations between original and substitution parts.

COMMON RESISTORS (Substitute Resistor) ORIGINAL RESISTOR

- Carbon Resistor 1/6W, Tolerance $\pm 5\%$ (J) •Printed Resistor
- Carbon Resistor 1/3W, Tolerance $\pm 5\%$ (J) •Solid Resistor 1/4W
- Cement Resistor 5W, Tolerance $\pm 10\%$ (K) •Cement Resistor 3W
- Low Leak Electrolytic Capacitor 50V..... •Low Leak Electrolytic Capacitor 25V

2) There are some types of lead wires of resistors and capacitors. One is straight lead wire type, and others are formed lead wire type.

As the straight lead wire type is selected for common resistors and capacitors, please substitute the straight lead wire type for the formed lead wire type.



3) Standard resistors & capacitors supplied as substitute (on this list) may be different in configuration and color, from those used in set.

1. RESISTORS**1-1. Carbon Resistor 1/8W, Tolerance $\pm 5\%$ (J)**

<Cylindrical Type Chip Component>

| Value (Ω) | CHIP 1/8W Stock No. | C.R. 1/6W Stock No. | C.R. 1/4W Stock No. | C.R. 1/3W Stock No. |
|-----------------------|------------------------|------------------------|------------------------|------------------------|
| 0.0 | 46741100 | | | |
| 1.0 | | | 48006000 | 00249000 |
| 1.1 | | | 48006100 | 00249700 |
| 1.2 | | | 48006200 | 00250400 |
| 1.3 | | | 48006300 | 00251100 |
| 1.5 | | | 48006400 | 00251800 |
| 1.6 | | | 48006500 | 00252500 |
| 1.8 | | | 48006600 | 00253200 |
| 2.0 | | | 48006700 | 00253900 |
| 2.2 | 46741200 | 46471100 | 48006800 | 00254600 |
| 2.4 | 46741300 | 46471200 | 48006900 | 00255200 |
| 2.7 | 46741400 | 46471300 | 48007000 | 00255800 |
| 3.0 | 46741500 | 46471400 | 48007100 | 00256400 |
| 3.3 | 46741600 | 46471500 | 48007200 | 00257000 |
| 3.6 | 46741700 | 46471600 | 48007300 | 00257600 |
| 3.9 | 46741800 | 46471700 | 48007400 | 00258200 |
| 4.3 | 46741900 | 46471800 | 48007500 | 00258800 |
| 4.7 | 46742000 | 46471900 | 48007600 | 00259400 |
| 5.1 | 46742100 | 46472000 | 48007700 | 00260000 |
| 5.6 | 46742200 | 46472100 | 48007800 | 00260600 |
| 6.2 | 46742300 | 46472200 | 48007900 | 00261200 |
| 6.8 | 46742400 | 46472300 | 48008000 | 00261800 |
| 7.5 | 46742500 | 46472400 | 48008100 | 00262400 |
| 8.2 | 46742600 | 46472500 | 48008200 | 00263000 |
| 9.1 | 46742700 | 46472600 | 48008300 | 00263600 |
| 10.0 | 46742800 | 46472700 | 48008400 | 00264200 |
| 11.0 | 46742900 | 46472800 | 48008500 | 00264800 |
| 12.0 | 46743000 | 46472900 | 48008600 | 00265400 |
| 13.0 | 46743100 | 46473000 | 48008700 | 00266000 |
| 15.0 | 46743200 | 46473100 | 48008800 | 00266600 |
| 16.0 | 46743300 | 46473200 | 48008900 | 00267200 |
| 18.0 | 46743400 | 46473300 | 48009000 | 00267800 |
| 20.0 | 46743500 | 46473400 | 48009100 | 00268400 |
| 22.0 | 46743600 | 46473500 | 48009200 | 00269000 |
| 24.0 | 46743700 | 46473600 | 48009300 | 00269600 |
| 27.0 | 46743800 | 46473700 | 48009400 | 00270200 |
| 30.0 | 46743900 | 46473800 | 48009500 | 00270800 |
| 33.0 | 46744000 | 46473900 | 48009600 | 00271400 |
| 36.0 | 46744100 | 46474000 | 48009700 | 00272000 |
| 39.0 | 46744200 | 46474100 | 48009800 | 00272600 |
| 43.0 | 46744300 | 46474200 | 48009900 | 00273200 |
| 47.0 | 46744400 | 46474300 | 48010000 | 00273800 |
| 51.0 | 46744500 | 46474400 | 48010100 | 00274400 |
| 56.0 | 46744600 | 46474500 | 48010200 | 00275000 |
| 62.0 | 46744700 | 46474600 | 48010300 | 00275600 |
| 68.0 | 46744800 | 46474700 | 48010400 | 00276200 |
| 75.0 | 46744900 | 46474800 | 48010500 | 00276800 |
| 82.0 | 46745000 | 46474900 | 48010600 | 00277400 |
| 91.0 | 46745100 | 46475000 | 48010700 | 00278000 |
| 100.0 | 46745200 | 46475100 | 48010800 | 00278600 |
| 110.0 | 46745300 | 46475200 | 48010900 | 00279200 |
| 120.0 | 46745400 | 46475300 | 48011000 | 00279800 |
| 130.0 | 46745500 | 46475400 | 48011100 | 00280400 |
| 150.0 | 46745600 | 46475500 | 48011200 | 00281000 |
| 160.0 | 46745700 | 46475600 | 48011300 | 00281600 |
| 180.0 | 46745800 | 46475700 | 48011400 | 00282200 |
| 200.0 | 46745900 | 46475800 | 48011500 | 00282800 |
| 220.0 | 46746000 | 46475900 | 48011600 | 00283400 |
| 240.0 | 46746100 | 46476000 | 48011700 | 00284000 |
| 270.0 | 46746200 | 46476100 | 48011800 | 00284600 |
| 300.0 | 46746300 | 46476200 | 48011900 | 00285200 |
| 330.0 | 46746400 | 46476300 | 48012000 | 00285800 |

1-2. Carbon Resistor 1/6W, Tolerance $\pm 5\%$ (J)**1-3. Carbon Resistor 1/4W, Tolerance $\pm 2\%$ (G)****1-4. Carbon Resistor 1/3W, Tolerance $\pm 5\%$ (J)**

| Value (Ω) | CHIP 1/8W Stock No. | C.R. 1/6W Stock No. | C.R. 1/4W Stock No. | C.R. 1/3W Stock No. |
|-----------------------|------------------------|------------------------|------------------------|------------------------|
| 360.0 | 46746500 | 46476400 | 48012100 | 00257200 |
| 390.0 | 46746600 | 46476500 | 48012200 | 00257800 |
| 430.0 | 46746700 | 46476600 | 48012300 | 00258400 |
| 470.0 | 46746800 | 46476700 | 48012400 | 00259000 |
| 510.0 | 46746900 | 46476800 | 48012500 | 00259600 |
| 560.0 | 46747000 | 46476900 | 48012600 | 00260200 |
| 620.0 | 46747100 | 46477000 | 48012700 | 00260800 |
| 680.0 | 46747200 | 46499600 | 48012800 | 00261400 |
| 750.0 | 46747300 | 46477100 | 48012900 | 00262000 |
| 820.0 | 46747400 | 46477200 | 48013000 | 00262600 |
| 910.0 | 46747500 | 46477300 | 48013100 | 00263200 |
| 1.0k | 46747600 | 46477400 | 48013200 | 00263800 |
| 1.1k | 46747700 | 46477500 | 48013300 | 00264400 |
| 1.2k | 46747800 | 46477600 | 48013400 | 00265000 |
| 1.3k | 46747900 | 46477700 | 48013500 | 00265600 |
| 1.5k | 46748000 | 46477800 | 48013600 | 00266200 |
| 1.6k | 46748100 | 46477900 | 48013700 | 00266800 |
| 1.8k | 46748200 | 46478000 | 48013800 | 00267400 |
| 2.0k | 46748300 | 46478100 | 48013900 | 00268000 |
| 2.2k | 46748400 | 46478200 | 48014000 | 00268600 |
| 2.4k | 46748500 | 46478300 | 48014100 | 00269200 |
| 2.7k | 46748600 | 46478400 | 48014200 | 00269800 |
| 3.0k | 46748700 | 46478500 | 48014300 | 00270400 |
| 3.3k | 46748800 | 46478600 | 48014400 | 00271000 |
| 3.6k | 46748900 | 46478700 | 48014500 | 00271600 |
| 3.9k | 46749000 | 46478800 | 48014600 | 00272200 |
| 4.3k | 46749100 | 46478900 | 48014700 | 00272800 |
| 4.7k | 46749200 | 46479000 | 48014800 | 00273400 |
| 5.1k | 46749300 | 46479100 | 48014900 | 00274000 |
| 5.6k | 46749400 | 46479200 | 48015000 | 00274600 |
| 6.2k | 46749500 | 46479300 | 48015100 | 00275200 |
| 6.8k | 46749600 | 46479400 | 48015200 | 00275800 |
| 7.5k | 46749700 | 46479500 | 48015300 | 00276400 |
| 8.2k | 46749800 | 46479600 | 48015400 | 00277000 |
| 9.1k | 46749900 | 46479700 | 48015500 | 00277600 |
| 10.0k | 46750000 | 46479800 | 48015600 | 00278200 |
| 11.0k | 46750100 | 46479900 | 48015700 | 00278800 |
| 12.0k | 46750200 | 46480000 | 48015800 | 00279400 |
| 13.0k | 46750300 | 46480100 | 48015900 | 00280000 |
| 15.0k | 46750400 | 46480200 | 48016000 | 00280600 |
| 16.0k | 46750500 | 46480300 | 48016100 | 00281200 |
| 18.0k | 46750600 | 46480400 | 48016200 | 00281800 |
| 20.0k | 46750700 | 46480500 | 48016300 | 00282400 |
| 22.0k | 46750800 | 46480600 | 48016400 | 00283000 |
| 24.0k | 46750900 | 46480700 | 48016500 | 00283600 |
| 27.0k | 46751000 | 46480800 | 48016600 | 00284200 |
| 30.0k | 46751100 | 46480900 | 48016700 | 00284800 |
| 33.0k | 46751200 | 46481000 | 48016800 | 00285400 |
| 36.0k | 46751300 | 46481100 | 48016900 | 00286000 |
| 39.0k | 46751400 | 46481200 | 48017000 | 00286600 |
| 43.0k | 46751500 | 46481300 | 48017100 | 00287200 |
| 47.0k | 46751600 | 46481400 | 48017200 | 00287800 |
| 51.0k | 46751700 | 46481500 | 48017300 | 00288400 |
| 56.0k | 46751800 | 46481600 | 48017400 | 00289000 |
| 62.0k | 46751900 | 46481700 | 48017500 | 00289600 |
| 68.0k | 46752000 | 46481800 | 48017600 | 00290200 |
| 75.0k | 46752100 | 46481900 | 48017700 | 00290800 |
| 82.0k | 46752200 | 46482000 | 48017800 | 00291400 |
| 91.0k | 46752300 | 46482100 | 48017900 | 00292000 |
| 100.0k | 46752400 | 46482200 | 48018000 | 00292600 |
| 110.0k | 46752500 | 46482300 | 48018100 | 00293200 |
| 120.0k | 46752600 | 46482400 | 48018200 | 00293800 |

| Value (Ω) | CHIP 1/8W | C.R. 1/6W | C.R. 1/4W | C.R. 1/3W |
|--------------|-----------|-----------|-----------|-----------|
| | Stock No. | Stock No. | Stock No. | Stock No. |
| 130.0k | 46752700 | 46482500 | 48018300 | 00250900 |
| 150.0k | 46752800 | 46482600 | 48018400 | 00251600 |
| 160.0k | 46752900 | 46482700 | 48018500 | 00252300 |
| 180.0k | 46753000 | 46482800 | 48018600 | 00253000 |
| 200.0k | 46753100 | 46482900 | 48018700 | 00253700 |
| 220.0k | 46753200 | 46483000 | 48018800 | 00254400 |
| 240.0k | 46753300 | 46483100 | 48018900 | 00255100 |
| 270.0k | 46753400 | 46483200 | 48019000 | 00255700 |
| 300.0k | 46753500 | 46483300 | 48019100 | 00256300 |
| 330.0k | 46753600 | 46483400 | 48019200 | 00256900 |
| 360.0k | 46753700 | 46483500 | 48019300 | 00257500 |
| 390.0k | 46753800 | 46483600 | 48019400 | 00258100 |
| 430.0k | 46753900 | 46483700 | 48019500 | 00258700 |
| 470.0k | 46754000 | 46483800 | 48019600 | 00259300 |
| 510.0k | 46754100 | 46483900 | 48019700 | 00259900 |
| 560.0k | 46754200 | 46484000 | 48019800 | 00260500 |
| 620.0k | 46754300 | 46484100 | 48019900 | 00261100 |

| Value (Ω) | CHIP 1/8W | C.R. 1/6W | C.R. 1/4W | C.R. 1/3W |
|--------------|-----------|-----------|-----------|-----------|
| | Stock No. | Stock No. | Stock No. | Stock No. |
| 680.0k | 46754400 | 46484200 | 48020000 | 00261700 |
| 750.0k | 46754500 | 46484300 | 48020100 | 00262300 |
| 820.0k | 46754600 | 46484400 | 48020200 | 00262900 |
| 910.0k | 46754700 | 46484500 | 48020300 | 00263500 |
| 1.0M | 46754800 | 46484600 | 48020400 | 00264900 |
| 1.1M | | | 00225900 | 00249600 |
| 1.2M | | | 00226600 | 00250300 |
| 1.3M | | | 00227300 | 00251000 |
| 1.5M | | | 00228000 | 00251700 |
| 1.6M | | | 00228700 | 00252400 |
| 1.8M | | | 00229400 | 00253100 |
| 2.0M | | | 00230100 | 00253800 |
| 2.2M | | | 00230800 | 00254500 |
| 2.4M | | | 00231500 | 00594200 |
| 2.7M | | | 00232200 | 00594300 |
| 3.0M | | | 00232900 | 00594400 |
| 3.3M | | | 00233600 | 00594500 |

5. Non-Inflamable Resistor 1/2W, Tolerance $\pm 5\%$ (J)

6. Non-Inflamable Resistor 1W, Tolerance $\pm 5\%$ (J)

| Value (Ω) | N.I. 1/2W | N.I. 1W | Value (Ω) | N.I. 1/2W | N.I. 1W | Value (Ω) | N.I. 1/2W | N.I. 1W |
|--------------|-----------|-----------|--------------|-----------|-----------|--------------|-----------|-----------|
| | Stock No. | Stock No. | | Stock No. | Stock No. | | Stock No. | Stock No. |
| 0.22 | 46400000 | 46239200 | 18.0 | 46402300 | 46241500 | 1.5k | 46404600 | 46243800 |
| 0.27 | 46400100 | 46239300 | 22.0 | 46402400 | 46241600 | 1.8k | 46404700 | 46243900 |
| 0.33 | 46400200 | 46239400 | 27.0 | 46402500 | 46241700 | 2.2k | 46404800 | 46244000 |
| 0.39 | 46400300 | 46239500 | 33.0 | 46402600 | 46241800 | 2.7k | 46404900 | 46244100 |
| 0.47 | 46400400 | 46239600 | 39.0 | 46402700 | 46241900 | 3.3k | 46405000 | 46244200 |
| 0.56 | 46400500 | 46239700 | 47.0 | 46402800 | 46242000 | 3.9k | 46405100 | 46244300 |
| 0.68 | 46400600 | 46239800 | 56.0 | 46402900 | 46242100 | 4.7k | 46405200 | 46244400 |
| 0.82 | 46400700 | 46239900 | 68.0 | 46403000 | 46242200 | 5.6k | 46405300 | 46244500 |
| 1.0 | 46400800 | 46240000 | 82.0 | 46403100 | 46242300 | 6.8k | 46405400 | 46244600 |
| 1.2 | 46400900 | 46240100 | 100.0 | 46403200 | 46242400 | 8.2k | 46405500 | 46244700 |
| 1.5 | 46401000 | 46240200 | 120.0 | 46403300 | 46242500 | 10.0k | 46405600 | 46244800 |
| 1.8 | 46401100 | 46240300 | 150.0 | 46403400 | 46242600 | 12.0k | 46405700 | 46244900 |
| 2.2 | 46401200 | 46240400 | 180.0 | 46403500 | 46242700 | 15.0k | 46405800 | 46245000 |
| 2.7 | 46401300 | 46240500 | 220.0 | 46403600 | 46242800 | 18.0k | 46405900 | 46245100 |
| 3.3 | 46401400 | 46240600 | 270.0 | 46403700 | 46242900 | 22.0k | 46406000 | 46245200 |
| 3.9 | 46401500 | 46240700 | 330.0 | 46403800 | 46243000 | 27.0k | 46406100 | 46245300 |
| 4.7 | 46401600 | 46240800 | 390.0 | 46403900 | 46243100 | 33.0k | 46406200 | 46245400 |
| 5.6 | 46401700 | 46240900 | 470.0 | 46404000 | 46243200 | 39.0k | 46406300 | 46245500 |
| 6.8 | 46401800 | 46241000 | 560.0 | 46404100 | 46243300 | 47.0k | 46406400 | 46245600 |
| 8.2 | 46401900 | 46241100 | 680.0 | 46404200 | 46243400 | 56.0k | 46406500 | 46245700 |
| 10.0 | 46402000 | 46241200 | 820.0 | 46404300 | 46243500 | 68.0k | 46406600 | 46245800 |
| 12.0 | 46402100 | 46241300 | 1.0k | 46404400 | 46243600 | 82.0k | | 46245900 |
| 15.0 | 46402200 | 46241400 | 1.2k | 46404500 | 46243700 | 100.0k | | 46246000 |

1-7. Cement Resistor 2W, Tolerance $\pm 10\%$ (K)

1-8. Cement Resistor 5W, Tolerance $\pm 10\%$ (K)

| Value (Ω) | Ce. R. 2W Stock No. | Ce. R. 5W Stock No. | Value (Ω) | Ce. R. 2W Stock No. | Ce. R. 5W Stock No. | Value (Ω) | Ce. R. 2W Stock No. | Ce. R. 5W Stock No. |
|-----------------------|------------------------|------------------------|-----------------------|------------------------|------------------------|-----------------------|------------------------|------------------------|
| 0.15 | 00068000 | | 12.0 | 00067700 | 00078900 | 1.0k | | 00095000 |
| 0.18 | 00068300 | | 15.0 | 00067900 | 00079200 | 1.2k | | 00095200 |
| 0.22 | 00068600 | 00080000 | 18.0 | 00068200 | 00079500 | 1.5k | | 00095400 |
| 0.27 | 00068900 | 00080400 | 22.0 | 00068500 | 00079800 | 1.8k | | 00095600 |
| 0.33 | 00069200 | 00080700 | 27.0 | 00068800 | 00080200 | 2.2k | | 00095800 |
| 0.39 | 00069500 | 00081000 | 33.0 | 00069100 | 00080600 | 2.7k | | 00096000 |
| 0.47 | 00069800 | 00081300 | 39.0 | 00069400 | 00080900 | 3.3k | | 00096300 |
| 0.56 | 00070100 | 00081600 | 47.0 | 00069700 | 00081200 | 3.9k | | 00096600 |
| 0.68 | 00070400 | 00082000 | 56.0 | 00070000 | 00081500 | 4.7k | | 00096900 |
| 0.82 | 00070700 | 00082300 | 68.0 | 00070300 | 00081800 | 5.6k | | 00097200 |
| 1.0 | 00067600 | 00078800 | 82.0 | 00070600 | 00082200 | 6.8k | | 00097400 |
| 1.2 | 00067800 | 00079100 | 100.0 | 00067500 | 00078700 | 8.2k | | 00097600 |
| 1.5 | 00068100 | 00079400 | 120.0 | | 00079000 | 10.0k | | 00095100 |
| 1.8 | 00068400 | 00079700 | 150.0 | 00092000 | 00079300 | 12.0k | | 00095300 |
| 2.2 | 00068700 | 00080100 | 180.0 | | 00079600 | 15.0k | | 00095500 |
| 2.7 | 00069000 | 00080500 | 220.0 | | 00079900 | 18.0k | | 00095700 |
| 3.3 | 00069300 | 00080800 | 270.0 | | 00080300 | 22.0k | | 00095900 |
| 3.9 | 00069600 | 00081100 | 330.0 | | 00096200 | 27.0k | | 00096100 |
| 4.7 | 00069900 | 00081400 | 390.0 | | 00096500 | 33.0k | | 00096400 |
| 5.6 | 00070200 | 00081700 | 470.0 | | 00096800 | 39.0k | | 00096700 |
| 6.8 | 00070500 | 00082100 | 560.0 | 00092100 | 00097100 | 47.0k | | 00097000 |
| 8.2 | 00070800 | 00082400 | 680.0 | | 00081900 | | | |
| 10.0 | 00067400 | 00078600 | 820.0 | | 00097500 | | | |

1-9. Fusing Resistor 1/4W, Tolerance $\pm 5\%$ (J)

1-10. Fusing Resistor 1/2W, Tolerance $\pm 5\%$ (J)

| Value (Ω) | F. R. 1/4W Stock No. | F. R. 1/2W Stock No. | Value (Ω) | F. R. 1/4W Stock No. | F. R. 1/2W Stock No. | Value (Ω) | F. R. 1/4W Stock No. | F. R. 1/2W Stock No. |
|-----------------------|-------------------------|-------------------------|-----------------------|-------------------------|-------------------------|-----------------------|-------------------------|-------------------------|
| 1.0 | | 00120000 | 12.0 | 48786500 | 00120100 | 150.0 | 48787800 | 00120500 |
| 1.2 | | 00120300 | 15.0 | 48786600 | 00120400 | 180.0 | 48787900 | 00120800 |
| 1.5 | | 00120600 | 18.0 | 48786700 | 00120700 | 220.0 | 48788000 | 00121100 |
| 1.8 | | 00120900 | 22.0 | 48786800 | 00121000 | 270.0 | 48788100 | 00121400 |
| 2.2 | | 00121200 | 27.0 | 48786900 | 00121300 | 330.0 | 48788200 | 00121700 |
| 2.7 | | 00121500 | 33.0 | 48787000 | 00121600 | 390.0 | 48788300 | 00122000 |
| 3.3 | | 00121800 | 39.0 | 48787100 | 00121900 | 470.0 | 48788400 | 00122300 |
| 3.9 | | 00122100 | 47.0 | 48787200 | 00122200 | 560.0 | | 00122600 |
| 4.7 | 48786000 | 00122400 | 56.0 | 48787300 | 00122500 | 680.0 | | 00122900 |
| 5.6 | 48786100 | 00122700 | 68.0 | 48787400 | 00122800 | 820.0 | | 00123200 |
| 6.8 | 48786200 | 00123000 | 82.0 | 48787500 | 00123100 | 1.0k | | 00119900 |
| 8.2 | 48786300 | 00123300 | 100.0 | 48787600 | 00119800 | | | |
| 10.0 | 48786400 | 00119700 | 120.0 | 48787700 | 00120200 | | | |

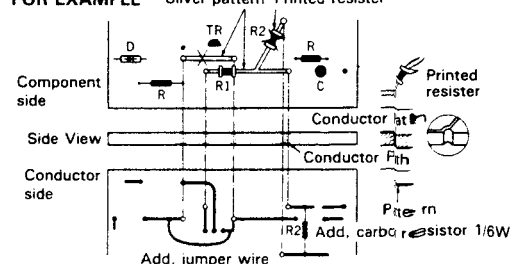
• Notice for replacement of printed resistor and silver pattern

The printed resistor of carbon resine and the printed silver foil pattern are coated on some printed circuit board.

And it is impossible to replace those parts. Therefore, please keep following notice when repairing or ordering parts.

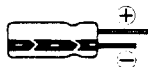
1. When repairing the printed resistor, cut off center portion of the printed resistor to make complete open circuit.
Then solder 1/6W type carbon resistor between copper patterns at both ends of the printed resistor.
2. When repairing the printed silver pattern, solder a jumper wire between copper patterns at both ends of the printed silver pattern.
3. As conductor path is easy to break, do not put any wires through holes of conductor path.
4. Do not heat up any conductor path.

FOR EXAMPLE Silver pattern Printed resistor



2. CAPACITORS

2-1. Electrolytic Capacitor 6.3V ~ 100V, Polar Type



• There are three sorts of case blue, black and gray.

| Value (μ F) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 100V |
|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. |
| 0.1 | | | | | | 48463300 | | 48467100 |
| 0.15 | | | | | | 48463400 | | 48467200 |
| 0.22 | | | | | | 48463500 | | 48467300 |
| 0.33 | | | | | | 48463600 | | 48467400 |
| 0.47 | | | | | | 48463700 | | 48467500 |
| 0.68 | | | | | | 48463800 | | 48467600 |
| 1.0 | | | | | | 48463900 | | 48467700 |
| 2.2 | | | | | | 48464000 | | 48467800 |
| 3.3 | | | | | | 48464100 | 48465200 | 48467900 |
| 4.7 | | | | 48461000 | 48462200 | 48464200 | 48465300 | 48468000 |
| 10.0 | | | 48459800 | 48461100 | 48462300 | 48464300 | 48465400 | 48468100 |
| 22.0 | | | 48459900 | 48461200 | 48462400 | 48464400 | 48465500 | 48468200 |
| 33.0 | | 48458700 | 48460000 | 48461300 | 48462500 | 48464500 | 48465600 | 48468300 |
| 47.0 | 48457600 | 48458800 | 48460100 | 48461400 | 48462600 | 48464600 | 48465700 | 48468400 |
| 100.0 | 48457700 | 48458900 | 48460200 | 48461500 | 48462700 | 48464700 | 48465800 | 48468500 |
| 220.0 | 48457800 | 48459000 | 48460300 | 48461600 | 48462800 | 48464800 | 48465900 | 48468600 |
| 330.0 | 48457900 | 48459100 | 48460400 | 48461700 | 48462900 | 48464900 | 48466000 | 48468700 |
| 470.0 | 48458000 | 48459200 | 48460500 | 48461800 | 48463000 | 48465000 | 48466100 | 48468800 |
| 1000.0 | 48458100 | 48459300 | 48460600 | 48461900 | 48463100 | 48465100 | 48466200 | |
| 2200.0 | 48458200 | 48459400 | 48460700 | 48462000 | 48463200 | | | |
| 3300.0 | 48458300 | 48459500 | 48460800 | 48462100 | | | | |
| 4700.0 | 48458400 | 48459600 | 48460900 | | | | | |
| 6800.0 | 48458500 | 48459700 | | | | | | |
| 10000.0 | 48458600 | | | | | | | |

2-2. Correspond 105°C Electrolytic Capacitor 6.3V ~ 100V, Small Polar Type

| Value (μ F) | 6.3V | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V |
|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. |
| 0.1 | | | | | | | | | 46308500 |
| 0.15 | | | | | | | | | 46308600 |
| 0.22 | | | | | | | | | 46308700 |
| 0.33 | | | | | | | | | 46308800 |
| 0.47 | | | | | | | | | 46308900 |
| 0.68 | | | | | | | | | 46309000 |
| 1.0 | | | | | | 46301100 | | | 46309100 |
| 2.2 | | | | | | 46301200 | | | 46309200 |
| 3.3 | | | | | | 46301300 | | | 46309300 |
| 4.7 | | | | | | 46301400 | | | 46309400 |
| 10 | | | | | | 46301500 | 46304500 | 46306700 | 46309500 |
| 22 | | | | 46296500 | 46298900 | 46301600 | 46304600 | 46306800 | 46309600 |
| 33 | | | 46294100 | 46296600 | 46299000 | 46301700 | 46304700 | 46306900 | 46309700 |
| 47 | | 46291700 | 46294200 | 46296700 | 46299100 | 46301800 | 46304800 | 46307000 | 46309800 |
| 100 | 46289300 | 46291800 | 46294300 | 46296800 | 46299200 | 46301900 | 46304900 | 46307100 | 46309900 |
| 220 | 46299400 | 46291900 | 46294400 | 46296900 | 46299300 | 46302000 | 46305000 | 46307200 | 46310000 |
| 330 | 46289500 | 46292000 | 46294500 | 46297000 | 46299400 | 46302100 | 46305100 | 46307300 | 46310100 |
| 470 | 46289600 | 46292100 | 46294600 | 46297100 | 46299500 | 46302200 | 46305200 | 46307400 | 46310200 |
| 1000 | 46289700 | 46292200 | 46294700 | 46297200 | 46299600 | 46302300 | 46305300 | | |
| 2200 | 46289800 | 46292300 | 46294800 | 46297300 | 46299700 | | | | |
| 3300 | 46289900 | 46292400 | 46294900 | 46297400 | | | | | |
| 4700 | 46290000 | 46292500 | 46295000 | | | | | | |
| 6800 | 46290100 | 46292600 | | | | | | | |
| 10000 | 46290200 | | | | | | | | |

2-3. 5L Type Electrolytic Capacitor 4V ~ 50V

| Value (μ F) | 4V | 6.3V | 10V | 16V | 25V | 35V | 50V |
|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. |
| 0.1 | | | | | | | 46712700 |
| 0.15 | | | | | | | 46712800 |
| 0.22 | | | | | | | 46712900 |
| 0.33 | | | | | | | 46713000 |
| 0.47 | | | | | | | 46713100 |
| 0.68 | | | | | | | 46713200 |
| 1.0 | | | | | | | 46713300 |
| 1.5 | | | | | | | 46713400 |
| 2.2 | | | | | | 46712000 | 46713500 |
| 3.3 | | | | | 46711300 | 46712100 | 46713600 |
| 4.7 | | | | 46710600 | 46711400 | 46712200 | 46713700 |
| 6.8 | | | 46709900 | 46710700 | 46711500 | 46712300 | 46713800 |
| 10 | | 46709200 | 46710000 | 46710800 | 46711600 | 46712400 | 46713900 |
| 15 | 46708500 | 46709300 | 46710100 | 46710900 | 46711700 | 46712500 | |
| 22 | 46708600 | 46709400 | 46710200 | 46711000 | 46711800 | 46712600 | |
| 33 | 46708700 | 46709500 | 46710300 | 46711100 | 46711900 | | |
| 47 | 46708800 | 46709600 | 46710400 | 46711200 | | | |
| 68 | 46708900 | 46709700 | 46710500 | | | | |
| 100 | 46709000 | 46709800 | | | | | |
| 220 | 46709100 | | | | | | |

2-4. 7L Type Electrolytic Capacitor 4V ~ 50V

| Value (μ F) | 4V | 6.3V | 10V | 16V | 25V | 35V | 50V |
|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. |
| 0.1 | | | | | | | 46276100 |
| 0.15 | | | | | | | 46845300 |
| 0.22 | | | | | | | 46276200 |
| 0.33 | | | | | | | 46276300 |
| 0.47 | | | | | | | 46276400 |
| 0.68 | | | | | | | 46845400 |
| 1.0 | | | | | | | 46276500 |
| 2.2 | | | | | | | 46276600 |
| 3.3 | | | | | | 46844600 | 46276700 |
| 4.7 | | | | | 46843900 | 46844700 | 46276800 |
| 10 | | | | 46275600 | 46844100 | 46844900 | 46276900 |
| 22 | | 46842500 | 46843100 | 46275700 | 46844300 | 46845100 | 46845800 |
| 33 | 46842000 | 46842600 | 46843200 | 46275800 | 46844400 | 46845200 | |
| 47 | 46842100 | 46842700 | 46843300 | 46275900 | 46844500 | | |
| 100 | 46842300 | 46842900 | 46843500 | 46276000 | | | |
| 220 | 46842400 | | | | | | |

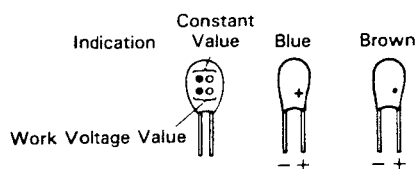
2-5. Low Leak Electrolytic Capacitor 50V, Polar Type <Tolerance $\pm 20\%$ (M)>



•The case color is only orange.

| Value (μ F) | Stock No. | Value (μ F) | Stock No. | Value (μ F) | Stock No. | Value (μ F) | Stock No. |
|------------------|-----------|------------------|-----------|------------------|-----------|------------------|-----------|
| 0.1 | 46030500 | 1.0 | 46030800 | 10.0 | 46031400 | 150.0 | 46032000 |
| 0.15 | 46424500 | 1.5 | 46030900 | 22.0 | 46031500 | 220.0 | 46032100 |
| 0.22 | 46030600 | 2.2 | 46031000 | 33.0 | 46031600 | 330.0 | 46032200 |
| 0.33 | 46424700 | 3.3 | 46031100 | 47.0 | 46031700 | 470.0 | 46032300 |
| 0.47 | 46030700 | 4.7 | 46031200 | 68.0 | 46031800 | | |
| 0.68 | 46424900 | 6.8 | 46031300 | 100.0 | 46031900 | | |

2-6. Tantalum Capacitor 35V, Tolerance $\pm 20\%$ (M)



• There are blue & brown type of tantalum capacitor, however both type can be used commonly.

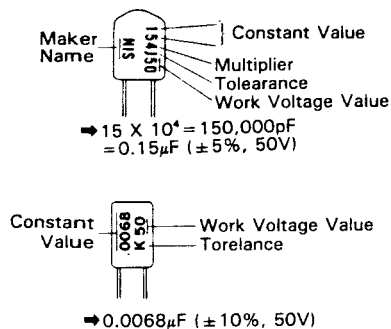
| Value (μF) | Stock No. | Value (μF) | Stock No. | Value (μF) | Stock No. |
|-------------------------|-----------|-------------------------|-----------|-------------------------|-----------|
| 0.068 | 00323700 | 0.47 | 00323500 | 3.3 | 00323400 |
| 0.1 | 00322700 | 0.68 | 00323800 | 4.7 | 00323600 |
| 0.15 | 00322900 | 1.0 | 00322800 | 6.8 | 00323900 |
| 0.22 | 00323100 | 1.5 | 00323000 | 10.0 | 00322600 |
| 0.33 | 00323300 | 2.2 | 00323200 | | |

2-7. Mylar Capacitor 50V, Tolerance $\pm 5\%$ (J) <Small Type>

| Value (μF) | Stock No. | Value (μF) | Stock No. | Value (μF) | Stock No. | Value (μF) | Stock No. | Value (μF) | Stock No. |
|-------------------------|-----------|-------------------------|-----------|-------------------------|-----------|-------------------------|-----------|-------------------------|-----------|
| 470pF | 48320000 | 0.0024 | 46688000 | 0.0082 | 48323000 | 0.030 | 46690600 | 0.10 | 48325600 |
| 560pF | 48320200 | 0.0027 | 48321800 | 0.0091 | 46689400 | 0.033 | 48324400 | 0.11 | 46692000 |
| 680pF | 48320400 | 0.0030 | 46688200 | 0.010 | 48323200 | 0.036 | 46690800 | 0.12 | 46692100 |
| 820pF | 48320600 | 0.0033 | 48322000 | 0.011 | 46689600 | 0.039 | 48324600 | 0.13 | 46692200 |
| 0.0010 μF | 48320800 | 0.0036 | 46688400 | 0.012 | 48323400 | 0.043 | 46691000 | 0.15 | 46692300 |
| 0.0011 | 46687200 | 0.0039 | 48322200 | 0.013 | 46689800 | 0.047 | 48324800 | 0.16 | 46692400 |
| 0.0012 | 48321000 | 0.0043 | 46688600 | 0.015 | 48323600 | 0.051 | 46691200 | 0.18 | 46692500 |
| 0.0013 | 46687400 | 0.0047 | 48322400 | 0.016 | 46690000 | 0.056 | 48325000 | 0.20 | 46692600 |
| 0.0015 | 48321200 | 0.0051 | 46688800 | 0.018 | 48323800 | 0.062 | 46691400 | 0.22 | 46692700 |
| 0.0016 | 46687600 | 0.0056 | 48322600 | 0.020 | 46690200 | 0.068 | 48325200 | | |
| 0.0018 | 48321400 | 0.0062 | 46689000 | 0.022 | 48324000 | 0.075 | 46691600 | | |
| 0.0020 | 46687800 | 0.0068 | 48322800 | 0.024 | 46690400 | 0.082 | 48325400 | | |
| 0.0022 | 48321600 | 0.0075 | 46689200 | 0.027 | 48324200 | 0.091 | 46691800 | | |

2-8. Film (Mylar) Capacitor 100V, Tolerance $\pm 5\%$ (J)

*Use capacitor with of 10V Type in lieu of one with 0.3V Type.



| Value (μF) | Stock No. | Value (μF) | Stock No. | Value (μF) | Stock No. | Value (μF) | Stock No. |
|-------------------------|-----------|-------------------------|-----------|-------------------------|-----------|-------------------------|-----------|
| 0.001 | 00403800 | 0.0051 | 00405500 | 0.027 | 00407200 | 0.13 | 00408900 |
| 0.0011 | 00403900 | 0.0056 | 00405600 | 0.03 | 00407300 | 0.15 | 00409000 |
| 0.0012 | 00404000 | 0.0062 | 00405700 | 0.033 | 00407400 | 0.16 | 00409100 |
| 0.0013 | 00404100 | 0.0068 | 00405800 | 0.036 | 00407500 | 0.18 | 00409200 |
| 0.0015 | 00404200 | 0.0075 | 00405900 | 0.039 | 00407600 | 0.2 | 00409300 |
| 0.0016 | 00404300 | 0.0082 | 00406000 | 0.043 | 00407700 | 0.22 | 00409400 |
| 0.0018 | 00404400 | 0.0091 | 00406100 | 0.047 | 00407800 | 0.24 | 00409500 |
| 0.002 | 00404500 | 0.01 | 00406200 | 0.051 | 00407900 | 0.27 | 00409600 |
| 0.0022 | 00404600 | 0.011 | 00406300 | 0.056 | 00408000 | 0.30 | 00409700 |
| 0.0024 | 00404700 | 0.012 | 00406400 | 0.062 | 00408100 | 0.33 | 00409800 |
| 0.0027 | 00404800 | 0.013 | 00406500 | 0.068 | 00408200 | 0.36 | 00409900 |
| 0.003 | 00404900 | 0.015 | 00406600 | 0.075 | 00408300 | 0.39 | 00410000 |
| 0.0033 | 00405000 | 0.016 | 00406700 | 0.082 | 00408400 | 0.43 | 00410100 |
| 0.0036 | 00405100 | 0.018 | 00406800 | 0.091 | 00408500 | 0.47 | 00410200 |
| 0.0039 | 00405200 | 0.02 | 00406900 | 0.1 | 00408600 | | |
| 0.0043 | 00405300 | 0.022 | 00407000 | 0.11 | 00408700 | | |
| 0.0047 | 00405400 | 0.024 | 00407100 | 0.12 | 00408800 | | |

2-9. Metalized Mylar Capacitor 63V, Tolerance $\pm 10\%$ (K) <Small Type>

| Value (μF) | Stock No. | Value (μF) | Stock No. | Value (μF) | Stock No. | Value (μF) | Stock No. |
|-------------------------|-----------|-------------------------|-----------|-------------------------|-----------|-------------------------|-----------|
| 0.1 | 48477900 | 0.22 | 48478300 | 0.47 | 48478700 | 1.0 | 48479100 |
| 0.12 | 48478000 | 0.27 | 48478400 | 0.56 | 48478800 | | |
| 0.15 | 48478100 | 0.33 | 48478500 | 0.68 | 48478900 | | |
| 0.18 | 48478200 | 0.39 | 48478600 | 0.82 | 48479000 | | |

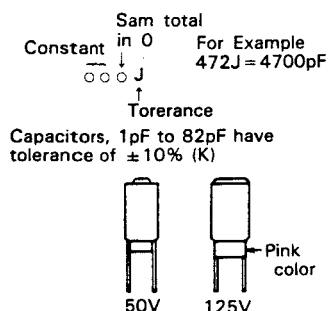
2-10. Polypropylene Film Capacitor 100V, Tolerance $\pm 5\%$ (J)

| Value (μF) | Stock No. | Value (μF) | Stock No. | Value (μF) | Stock No. | Value (μF) | Stock No. | Value (μF) | Stock No. |
|-------------------------|-----------|-------------------------|-----------|-------------------------|-----------|-------------------------|-----------|-------------------------|-----------|
| 0.0001 | 46645100 | 0.00051 | 46646800 | 0.0027 | 46648500 | 0.013 | 46650200 | 0.068 | 46651900 |
| 0.00011 | 46645200 | 0.00056 | 46646900 | 0.003 | 46648600 | 0.015 | 46650300 | 0.075 | 46652000 |
| 0.00012 | 46645300 | 0.00062 | 46647000 | 0.0033 | 46648700 | 0.016 | 46650400 | 0.082 | 46652100 |
| 0.00013 | 46645400 | 0.00068 | 46647100 | 0.0036 | 46648800 | 0.018 | 46650500 | 0.091 | 46652200 |
| 0.00015 | 46645500 | 0.00075 | 46647200 | 0.0039 | 46648900 | 0.02 | 46650600 | 0.1 | 46652300 |
| 0.00016 | 46645600 | 0.00082 | 46647300 | 0.0043 | 46649000 | 0.022 | 46650700 | 0.11 | 46652400 |
| 0.00018 | 46645700 | 0.00091 | 46647400 | 0.0047 | 46649100 | 0.024 | 46650800 | 0.12 | 46652500 |
| 0.00020 | 46645800 | 0.001 | 46647500 | 0.0051 | 46649200 | 0.027 | 46650900 | 0.13 | 46652600 |
| 0.00022 | 46645900 | 0.0011 | 46647600 | 0.0056 | 46649300 | 0.03 | 46651000 | 0.15 | 46652700 |
| 0.00024 | 46646000 | 0.0012 | 46647700 | 0.0062 | 46649400 | 0.033 | 46651100 | 0.16 | 46652800 |
| 0.00027 | 46646100 | 0.0013 | 46647800 | 0.0068 | 46649500 | 0.036 | 46651200 | 0.18 | 46652900 |
| 0.0003 | 46646200 | 0.0015 | 46647900 | 0.0075 | 46649600 | 0.039 | 46651300 | 0.20 | 46653000 |
| 0.00033 | 46646300 | 0.0016 | 46648000 | 0.0082 | 46649700 | 0.043 | 46651400 | 0.22 | 46653100 |
| 0.00036 | 46646400 | 0.0018 | 46648100 | 0.0091 | 46649800 | 0.047 | 46651500 | | |
| 0.00039 | 46646500 | 0.002 | 46648200 | 0.01 | 46649900 | 0.051 | 46651600 | | |
| 0.00043 | 46646600 | 0.0022 | 46648300 | 0.011 | 46650000 | 0.056 | 46651700 | | |
| 0.00047 | 46646700 | 0.0024 | 46648400 | 0.012 | 46650100 | 0.062 | 46651800 | | |

2-11. Polystyrene Capacitor (Vertical Type) 50V, Tolerance $\pm 5\%$ (J)

2-12. Polystyrene Capacitor (Vertical Type) 125V, Tolerance $\pm 5\%$ (J)

Indication



| Value (pF) | 50V (J) | 125V (J) | Value (pF) | 50V (J) | 125V (J) | Value (pF) | 50V (J) | 125V (J) |
|------------|-----------|-----------|------------|-----------|-----------|------------|-----------|-----------|
| | Stock No. | Stock No. | | Stock No. | Stock No. | | Stock No. | Stock No. |
| 1 | | 46067300 | 130 | 00357900 | 00365700 | 1300 | 00358000 | 00365800 |
| 2 | | 46067400 | 150 | 00358100 | 46070800 | 1500 | 00358200 | 46642900 |
| 3 | | 46067500 | 160 | 00358300 | 00366100 | 1600 | 00358400 | 00366200 |
| 4 | | 46067600 | 180 | 00358600 | 46070900 | 1800 | 00358700 | 48494000 |
| 5 | | 46067700 | 200 | 00358800 | 00366500 | 2000 | 00358900 | 00366600 |
| 6 | | 46067800 | 220 | 00359000 | 46071000 | 2200 | 00359100 | 48494100 |
| 7 | | 46067900 | 240 | 00359200 | 00366900 | 2400 | 00359300 | 00367000 |
| 8 | | 46068000 | 270 | 00359400 | 46071100 | 2700 | 00359500 | 48494200 |
| 9 | | 46068100 | 300 | 00359600 | 00367300 | 3000 | 00359700 | 00367400 |
| 10 | | 46068200 | 330 | 00359800 | 46071200 | 3300 | 00359900 | 48494300 |
| 12 | | 46068400 | 360 | 00360000 | 00367700 | 3600 | 00360100 | 00367800 |
| 15 | | 46068600 | 390 | 00360200 | 46071300 | 3900 | 00363000 | 48494400 |
| 18 | | 46068800 | 430 | 00360400 | 00368100 | 4300 | 00360500 | 00368200 |
| 22 | | 46069000 | 470 | 00360600 | 46071400 | 4700 | 00360700 | 48494500 |
| 27 | | 46069200 | 510 | 00360900 | 00368600 | 5100 | 00361000 | 00368700 |
| 33 | | 46069400 | 560 | 00361100 | 46071500 | 5600 | 00361200 | 48494600 |
| 39 | | 46069600 | 620 | 00361300 | 00369000 | 6200 | 00361400 | 00369100 |
| 47 | | 46069800 | 680 | 00361500 | 46071600 | 6800 | 00361600 | 48494700 |
| 56 | | 46070000 | 750 | 00361700 | 00369500 | 7500 | 00361800 | 00369600 |
| 68 | | 46070200 | 820 | 00361900 | 46071700 | 8200 | 00362000 | 48494800 |
| 82 | | 46070400 | 910 | 00362100 | 00369900 | 9100 | 00362200 | 00370000 |
| 100 | 00357100 | 46070600 | 1000 | 00357200 | 46071800 | 10000 | 00357300 | 48494900 |
| 110 | 00357400 | 00365200 | 1100 | 00357500 | 00365300 | 11000 | 00357600 | 00365400 |
| 120 | 00357700 | 46060700 | 1200 | 00357800 | 48493800 | | | |

2-13. Ceramic Capacitor <Barrie Layer Capacitor> 25V, Tolerance $\pm 10\%$ (K)

| Value (pF) | Stock No. | Indication | Value (pF) | Stock No. | Indication | Value (pF) | Stock No. | Indication | Value (pF) | Stock No. | Indication |
|------------|-----------|------------|------------|-----------|------------|------------|-----------|------------|------------|-----------|------------|
| 1000 | 07211300 | 102k | 3900 | 07212700 | 392k | 15000 | 07213400 | 153k | 56000 | 07214100 | 563k |
| 1200 | 07212100 | 122k | 4700 | 07212800 | 472k | 18000 | 07213500 | 183k | 68000 | 07214200 | 683k |
| 1500 | 07212200 | 152k | 5600 | 07212900 | 562k | 22000 | 07213600 | 223k | 82000 | 07214300 | 823k |
| 1800 | 07212300 | 182k | 6800 | 07213000 | 682k | 27000 | 07213700 | 273k | 100000 | 07214400 | 104k |
| 2200 | 07212400 | 222k | 8200 | 07213100 | 822k | 33000 | 07213800 | 333k | 120000 | 07214500 | 124k |
| 2700 | 07212500 | 272k | 10000 | 07213200 | 103k | 39000 | 07213900 | 393k | 150000 | 07214600 | 154k |
| 3300 | 07212600 | 332k | 12000 | 07213300 | 123k | 47000 | 07214000 | 473k | | | |

2-14. Ceramic Capacitor 50V (Standard Type)

•No color indication
on top.
For example 1.5pF



| Value (pF) | Stock No. | Indication | Value (pF) | Stock No. | Indication | Value (pF) | Stock No. | Indication |
|------------|-----------|------------|------------|-----------|--------------|-------------|-----------|-----------------|
| 1 (±0.5) | 00381600 | <u>1</u> | 22 | 00382500 | <u>22</u> | 270 | 00383000 | <u>270pF</u> |
| 1.5 | 00382100 | <u>1.5</u> | 27 | 00382900 | <u>27</u> | 330 | 00383300 | <u>330pF</u> |
| 2 | 00382400 | <u>2</u> | 33 | 00383200 | <u>33</u> | 390 | 00383500 | <u>390pF</u> |
| 3 | 00383100 | <u>3</u> | 39 | 00383400 | <u>39</u> | 470 | 00383800 | <u>470pF</u> |
| 4 | 00383600 | <u>4</u> | 47 | 00383700 | <u>47pF</u> | 560 | 46076600 | <u>560pF</u> |
| 5 | 00384100 | <u>5</u> | 56 | 00384200 | <u>56pF</u> | 680 | 46076700 | <u>680pF</u> |
| 6 | 00384300 | <u>6</u> | 68 | 00384400 | <u>68pF</u> | 820 | 46076800 | <u>820pF</u> |
| 7 | 00384500 | <u>7</u> | 82 | 00384700 | <u>82pF</u> | 1000 (±10%) | 00381400 | <u>0.001μF</u> |
| 8 | 00384600 | <u>8</u> | 91 | 07251800 | <u>91pF</u> | 2200 | 00382700 | <u>0.0022μF</u> |
| 9 | 00384800 | <u>9</u> | 100 | 00381300 | <u>100pF</u> | 4700 | 00383900 | <u>0.0047μF</u> |
| 10 | 00381200 | <u>10</u> | 120 | 00381800 | <u>120pF</u> | 10000 | 00381500 | <u>0.01μF</u> |
| 12 (±10%) | 00381700 | <u>12</u> | 150 | 00382000 | <u>150pF</u> | 22000 | 00382800 | <u>0.022μF</u> |
| 15 | 00381900 | <u>15</u> | 180 | 00382300 | <u>180pF</u> | 47000 | 00384000 | <u>0.047μF</u> |
| 18 | 00382200 | <u>18</u> | 220 | 00382600 | <u>220pF</u> | | | |

2-15. Ceramic Capacitor 50V, Temperature Compensation

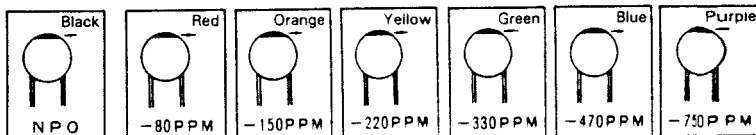
- N.P.O. No variation with temperature.
P.P.M. (Parts Per Million) 1/1,000,000.
- The ordinary ceramic capacitor increase its capacitance with temperature rise, however, capacitor for temperature compensation decrease its capacitance or does not vary with temperature rise.

For example:

$$\text{Capacitance} = \frac{-150(t-25^{\circ}\text{C})}{1 \times 10^6}$$

x C (pF)
[Orange type]

- Indications of capacitors are same as those of standard capacitors.



| Value (pF) | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. | Stock No. |
|------------|-----------------------|--------------------|-----------|-----------|-----------|-----------|-----------|
| 0.5 | 48218700 | | | | | | |
| 1 | 00388800 | | | | | | |
| 1.5 | 00388900 | | | | | | |
| 2 | 00396300 | | | | | | |
| 3 | 00396400 | 00397100 | 00397800 | 00398500 | 00399200 | 00399900 | 00400600 |
| 4 | 00396500 | 00397200 | 00397900 | 00398600 | 00399300 | 00400000 | 00400700 |
| 5 | 00396600 | 00397300 | 00398000 | 00398700 | 00399400 | 00400100 | 00400800 |
| 6 | 00386700 | 00397400 | 00398100 | 00398800 | 00399500 | 00400200 | 00400900 |
| 7 | 00396800 | 00397500 | 00398200 | 00398900 | 00399600 | 00400300 | 00401000 |
| 8 | 00396900 | 00397600 | 00398300 | 00399000 | 00399700 | 00400400 | 00401100 |
| 9 | 00397000 | 00397700 | 00398400 | 00399100 | 00399800 | 00400500 | 00401200 |
| 10 | 00389000 | 00389500 | 00390400 | 00391200 | 00392200 | 00393100 | 00394300 |
| 11 | 00389100 | 00389600 | 00390500 | 00391300 | 00392300 | 00393200 | 00394400 |
| 12 | 00386900 | 00389700 | 00390600 | 00391400 | 00392400 | 00393300 | 00394500 |
| 13 | 00389200 | 00389800 | 00390700 | 00391500 | 00392500 | 00393400 | 00394600 |
| 15 | 00387000 | 00389900 | 00390800 | 00391600 | 00392600 | 00393500 | 00394700 |
| 16 | 00389300 | 00388100 | 00388400 | 00391700 | 00392700 | 00393600 | 00394800 |
| 18 | 00387100 | 00390000 | 00390900 | 00391800 | 00388600 | 00393800 | 00394900 |
| 20 | 00389400 | 00388300 | 00391000 | 00391900 | 00392900 | 00393900 | 00395000 |
| 22 | 00387200 | 00390200 | 00391100 | 00392000 | 00393000 | 00394000 | 00395100 |
| 24 | 00387300 | | | | | | |
| 27 | 00387400 | | | | | | 00395400 |
| 33 | 00387500 | | | | | | 00395300 |
| 39 | 00387600 | | | | | | 00395200 |
| 43 | 48446900 | | | | | | |
| 47 | 00387700 | | | | | | |
| 56 | 00387800 | | | | | | |
| 68 | 00387900 | | | | | | |
| 82 | 00388000 | | | | | | |
| 91 | 48447200 | | | | | | |
| 100 | 00388100 | | | | | | |
| 130 | 48445400 | | | | | | |
| 150 | 48445700 | | | | | | |
| 180 | 48446000 | | | | | | |
| 200 | 48491300 | | | | | | |
| 220 | 48446300 | | | | | | |
| 240 | 48446600 | | | | | | |
| Tolerance | 1~10P±0.02% 11P±5% | 3~10P±0.25% 11P±5% | | | | | |

**2-16. Cylindrical Type Chip Component Ceramic Capacitor 50V, 25V, 16V
(1pF ~ 1000pF, 50V/1200pF ~ 10000pF, 16V/22000pF, 25V)**

| Value (pF) | Stock No. | Tolerance | Value (pF) | Stock No. | Tolerance | Value (pF) | Stock No. | Tolerance | Value (pF) | Stock No. | Tolerance |
|------------|-----------|-----------|------------|-----------|-----------|------------|-----------|-----------|------------|-----------|-----------|
| 1 | 48510000 | M | 15 | 48511600 | J | 68 | 48515200 | J | 1000 | 48516800 | K |
| 1.2 | 48510100 | M | 16 | 48511700 | J | 75 | 48515300 | K | 1200 | 48641000 | M |
| 1.5 | 48510200 | M | 18 | 48511800 | J | 82 | 48515400 | K | 1500 | 48641100 | M |
| 1.8 | 48510300 | M | 20 | 48511900 | J | 91 | 48515500 | K | 1800 | 48641200 | M |
| 2.2 | 48510400 | K | 22 | 48514000 | J | 100 | 48515600 | K | 2200 | 48641300 | M |
| 2.7 | 48510500 | K | 24 | 48514100 | J | 110 | 48515700 | K | 2700 | 48641400 | M |
| 3.3 | 48510600 | K | 27 | 48514200 | J | 150 | 48515800 | K | 3300 | 48641500 | M |
| 3.9 | 48510700 | K | 30 | 48514300 | J | 180 | 48515900 | K | 3900 | 48641600 | M |
| 4.7 | 48510800 | K | 33 | 48514400 | J | 220 | 48516000 | K | 4700 | 48641700 | M |
| 5.6 | 48510900 | K | 36 | 48514500 | J | 270 | 48516100 | K | 5600 | 48641800 | M |
| 6.8 | 48511000 | K | 39 | 48514600 | J | 330 | 48516200 | K | 6800 | 48641900 | M |
| 8.2 | 48511100 | K | 43 | 48514700 | J | 390 | 48516300 | K | 8200 | 48642000 | M |
| 10 | 48511200 | J | 47 | 48514800 | J | 470 | 48516400 | K | 10000 | 48642100 | M |
| 11 | 48511300 | J | 51 | 48514900 | J | 560 | 48516500 | K | 22000 | 48642200 | Z |
| 12 | 48511400 | J | 56 | 48515000 | J | 680 | 48516600 | K | | | |
| 13 | 48511500 | J | 62 | 48515100 | J | 820 | 48516700 | K | | | |

**2-17. Chip Component Ceramic Capacitor 50V, 25V
(1pF ~ 47000pF, 50V/56000pF, 25V)**

| Value (pF) | A | B | Stock No. | Value (pF) | A | B | Stock No. |
|------------|---|---|-----------|------------|---|---|-----------|
| 1.0 | C | K | 46754900 | 68 | J | H | 46757900 |
| 1.5 | C | K | 46755000 | 75 | J | H | 46758000 |
| 2.0 | C | K | 46755100 | 82 | J | H | 46758100 |
| 3.0 | C | J | 46755200 | 91 | J | H | 46758200 |
| 4.0 | C | H | 46755300 | 100 | J | H | 46758300 |
| 5.0 | C | H | 46755400 | 110 | J | H | 46855000 |
| 6.0 | D | H | 46755500 | 120 | J | H | 46855100 |
| 7.0 | D | H | 46755600 | 130 | J | H | 46855200 |
| 8.0 | D | H | 46755700 | 150 | J | H | 46855300 |
| 9.0 | D | H | 46755800 | 160 | J | H | 46855400 |
| 10 | D | H | 46755900 | 180 | J | H | 46855500 |
| 11 | J | H | 46756000 | 200 | J | H | 46855600 |
| 12 | J | H | 46756100 | 220 | J | H | 46855700 |
| 13 | J | H | 46756200 | 240 | J | H | 46855800 |
| 15 | J | H | 46756300 | 270 | J | H | 46855900 |
| 16 | J | H | 46756400 | 300 | J | H | 46856000 |
| 18 | J | H | 46756500 | 330 | J | H | 46856100 |
| 20 | J | H | 46756600 | 360 | J | H | 46856200 |
| 22 | J | H | 46756700 | 390 | J | H | 46856300 |
| 24 | J | H | 46756800 | 430 | J | H | 46856400 |
| 27 | J | H | 46756900 | 470 | J | H | 46856500 |
| 30 | J | H | 46757000 | 510 | J | H | 46856600 |
| 33 | J | H | 46757100 | 560 | J | H | 46856700 |
| 36 | J | H | 46757200 | 620 | J | H | 46856800 |
| 39 | J | H | 46757300 | 680 | J | H | 46856900 |
| 43 | J | H | 46757400 | 750 | J | H | 46857000 |
| 47 | J | H | 46757500 | 820 | J | H | 46898300 |
| 51 | J | H | 46757600 | 910 | J | H | 46898400 |
| 56 | J | H | 46757700 | 1000 | J | H | 46837700 |
| 62 | J | H | 46757800 | | | | |

| Value (pF) | A | Stock No. | Value (pF) | A | Stock No. |
|------------|---|-----------|------------|---|-----------|
| 1000 | K | 46794300 | 8200 | K | 46795400 |
| 1200 | K | 46794400 | 10000 | K | 46795500 |
| 1500 | K | 46794500 | 12000 | K | 46854200 |
| 1800 | K | 46794600 | 15000 | K | 46854300 |
| 2200 | K | 46794700 | 18000 | K | 46854400 |
| 2700 | K | 46794800 | 22000 | K | 46854500 |
| 3300 | K | 46794900 | 27000 | K | 46854600 |
| 3900 | K | 46795000 | 33000 | K | 46854700 |
| 4700 | K | 46795100 | 39000 | K | 46854800 |
| 5600 | K | 46795200 | 47000 | K | 46854900 |
| 6800 | K | 46795300 | 56000 | K | 46834100 |

A...Symbol of tolerance
for capacitance

| | |
|---|-----------|
| C | = ±0.25pF |
| D | = ±0.5pF |
| J | = ±5% |

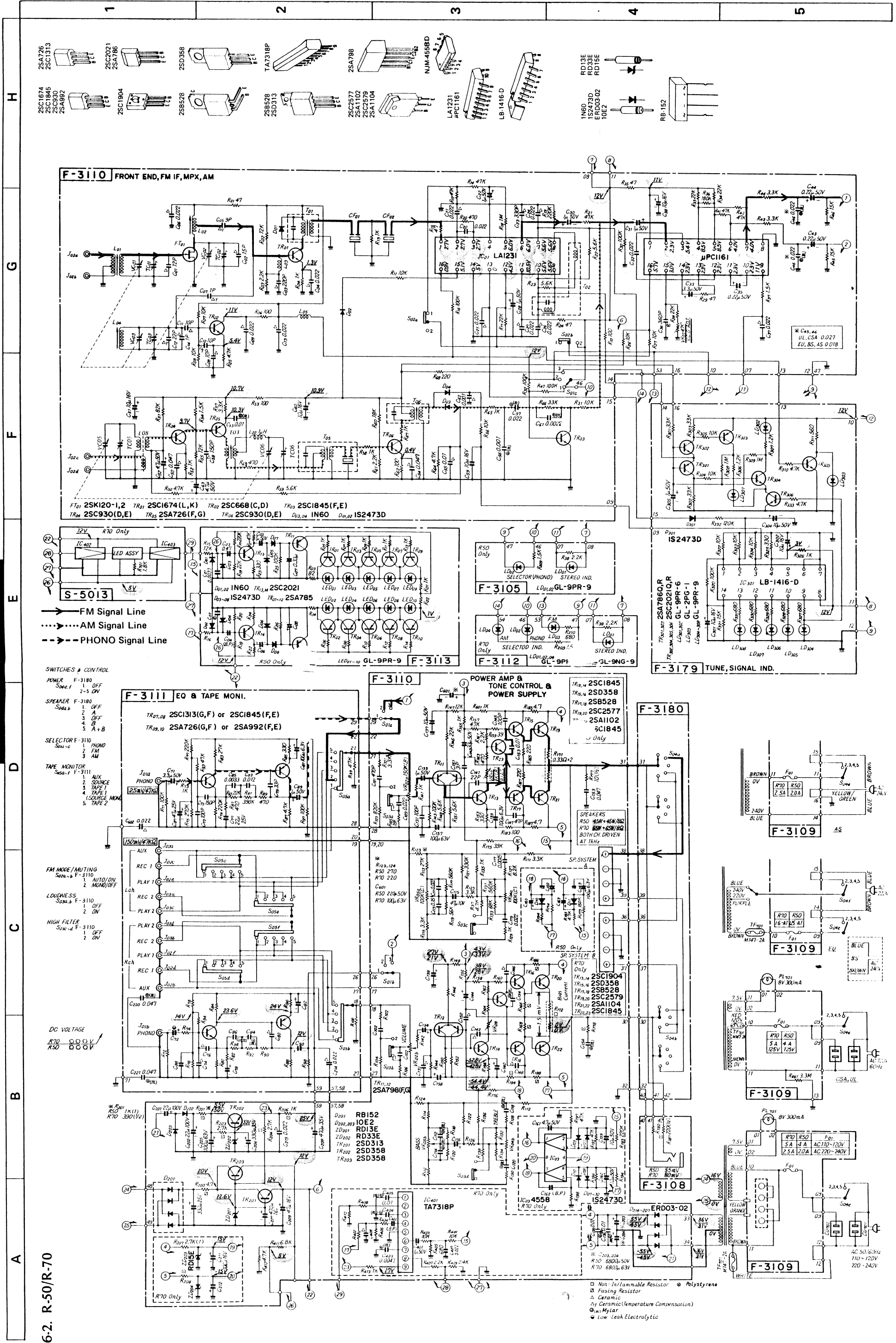
B...Symbol of tolerance
for temperature characteristic

| | |
|---|----------------|
| K | = ±250 PPM/°C |
| J | = ±120 PPM /°C |
| H | = ±60 PPM/°C |

•Note: Replacing chip capacitors

- 1) Since there is no indication of capacity value on chip capacitors, refer to schematic diagram for discrimination of its value.
- 2) Special parts such as the temperature compensation, etc. are not listed on this list.
In such case, please refer to service manual.

- 3) When replacing chip capacitors, use low wattage (about 20W ~ 30W) or special soldering iron for the chip parts in order to avoid unnecessary and/or heat damage.



6-2. R-50/R-70

R-30/50/70

R-30/50/70